SUBSECTION 8.9

Agriculture and Soils

8.9 Agriculture and Soils

8.9.1 Introduction

This subsection describes the potential environmental effects on agriculture and soils from the construction and operation of the project. Potential impacts are assessed for the proposed San Francisco Electric Reliability Project (SFERP) site and the associated underground pipelines for supplying natural gas, potable water, and process (recycled) water to the site. It also assesses impacts for the underground electric transmission line connection that extends to the west and north of the site.

Subsection 8.9.2 presents the laws, ordinances, regulations, and standards (LORS) applicable to agriculture and soils. Subsection 8.9.3 describes the existing environment that could be affected, including agricultural use and soil types. Subsection 8.9.4 identifies potential environmental effects, if any, from project development, and Subsection 8.9.5 presents mitigation measures. Subsection 8.9.6 describes the required permits and provides agency contacts. Subsection 8.9.7 provides the references used to develop this subsection.

A map of soil types is provided in Figure 8.9-1 (figures are located at the end of this subsection). LORS are summarized in Table 8.9-1. The characteristics of the relevant soil types are summarized in Table 8.9-2. Soil loss is discussed in Subsection 8.9.3.4 and is summarized in Tables 8.9-3, 8.9-4, and 8.9-5. The effect of plant emissions on soils is presented in Subsection 8.9.4.4. Required permits are summarized in Table 8.9-6.

8.9.2 Applicable Laws, Ordinances, Regulations, and Standards

Federal, state, county, and local LORS applicable to agriculture and soils are discussed below and summarized in Table 8.9-1.

8.9.2.1 Federal LORS

8.9.2.1.1 Federal Water Pollution Control Act of 1972 and the Clean Water Act of 1977. The Federal Water Pollution Control Act of 1972, commonly referred to as the Clean Water Act (CWA) following an amendment in 1977, establishes requirements for discharges of stormwater or wastewater from any point source that would affect the beneficial uses of waters of the United States. The Clean Water Act effectively prohibits discharges of stormwater from construction sites unless the discharge is in compliance with a National Pollution Discharge Elimination System (NPDES) permit. The State Water Resources Control Board (SWRCB) is the permitting authority in California and has adopted a statewide general permit for stormwater discharges associated with construction activity (General Construction Permit; SWRCB, 1999) that applies to projects resulting in one or more acres of soil disturbance. The proposed project would result in disturbance of more than one acre of soil. Therefore, the project will require the preparation of a stormwater management plan. The requirements are described in greater detail in Subsection 8.14, Water Resources. The City will develop and implement an erosion and sediment control plan to reduce the impact of runoff from the construction site. The erosion and sediment control plan will be reviewed and approved by City departments and the Port of San Francisco (Port) prior to implementation, and periodic inspections will be conducted to ensure compliance with the approved erosion and sediment control plan (Lee, 2004).

The CWA's primary effect on agriculture and soils within the project area consist of control of soil erosion and sedimentation during construction, including the preparation and execution of erosion and sedimentation control plans and measures for any soil disturbance during construction.

8.9.2.1.2 U.S. Department of Agriculture Engineering Standards. The U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), *National Engineering Handbook*, 1983, Sections 2 and 3, provide standards for soil conservation during planning, design, and construction activities. The project would need to conform to these standards during grading and construction to limit soil erosion.

8.9.2.2 State LORS

8.9.2.2.1 California Porter-Cologne Water Quality Control Act. The Porter-Cologne Water Quality Control Act of 1972 is the state equivalent of the federal CWA, and its effect on the SFERP would be similar. The California Water Code requires protection of water quality by appropriate design, sizing, and construction of erosion and sediment controls. The discharge of soil into surface waters resulting from land disturbance may require filing a report of waste discharge (see Water Code Section 13260a). The Regional Water Quality Control Board (RWQCB), which controls surface water discharges, may become involved indirectly if soil erosion threatens water quality.

TABLE 8.9-1
Laws, Ordinances, Regulations, and Standards for Agricultural and Soil Resources

Jurisdiction	LORS	Purpose	Regulating Agency	Applicability (AFC Subsection Explaining Conformance)
Federal	Federal Water Pollution Control Act of 1972: Clean Water Act of 1977 (including 1987 amendments)	Regulates stormwater discharge from construction and industrial activities	RWQCB San Francisco Bay Region, under State Water Resources Control Board. USEPA may retain jurisdiction at its discretion.	Subsections 8.9.2.1 and 8.9.4.2
	Natural Resources Conservation Service (1983), *National Engineering Handbook*, Sections 2 and 3	Standards for soil conservation	Natural Resources Conservation Commission	Subsections 8.9.2.1 and 8.9.5
State	Porter-Cologne Water Quality Control Act of 1972; Cal. Water Code 13260-13269: 23 CCR Chapter 9	Regulates stormwater discharge	California Energy Commission (CEC) and the San Francisco Region, under State Water Resources Control Board	Subsections 8.9.2.2 and 8.9.4.2
Local	Public Health Code	Hazardous waste	City and County of San Francisco	Subsections 8.9.2.3 and 8.9.4.2

TABLE 8.9-1
Laws, Ordinances, Regulations, and Standards for Agricultural and Soil Resources

Jurisdiction	LORS	Purpose	Regulating Agency	Applicability (AFC Subsection Explaining Conformance)
	San Francisco Health Code Article 22A	Requires site history, and if necessary, soil sampling and analysis to identify hazardous wastes	San Francisco Department of Public Health; Director of the Department of Public Health	Subsections 8.9.2.3 and 8.9.4.2
	Building Code	Excavation and grading	City and County of San Francisco	Subsection 8.9.2.3
	Port of San Francisco Stormwater Management Plan (December 2003)	Regulates construction stormwater management	San Francisco Bay Regional Water Quality Control Board (SFBRWQCB)	Subsection 8.9.4.2

8.9.2.3 Local LORS

The San Francisco Public Health Code (Article 22A) governs development of properties located in the filled land adjacent to San Francisco Bay with respect to hazardous waste materials that could be encountered during construction. Formerly known as the Maher Ordinance, it provides the requirements for testing and reporting for proposed developments in its area of jurisdiction.

In addition, the San Francisco Building Code (SFBC) amends the Uniform Building Code (UBC) and California Building Code (CBC) including Chapter 70, which establishes excavation, grading, and erosion control standards. It requires about 2 weeks for the Department of Building Inspection to assign an inspector to specific projects for review and approval of grading, excavation, and erosion control plans (Tham, 2003). During construction, stormwater will either percolate to the ground or flow directly to the San Francisco Bay under the Port's Stormwater Management Plan (SWMP) and NPDES permit. The Port's SWMP requires development and implementation of a construction SWMP for all construction sites greater than one acre.

8.9.3 Environmental Setting

The proposed 4.0-acre SFERP site is located in southeast San Francisco within an urban area along the western shore of the San Francisco Bay (the Bay). The site is bounded on the west by the proposed MUNI Metro East Light Rail Vehicle Maintenance and Operation Facility along Illinois Street, on the north by 25th Street, on the east by Maryland Street, and on the south by a developed property along the north side of Cesar Chavez Street. Surrounding land uses are composed of mixed light and heavy industrial and commercial properties. Businesses in the surrounding area include shipping and dry dock facilities, warehouses, manufacturing, and various small commercial businesses. The SFERP is currently being used as the location of a portable concrete batch processing plant. Prior uses of the

properties in this area were likely associated with the switchyard for the former Western Pacific Railroad or shipping and receiving (AGS, 1999). The approximately 8.5-acre construction material laydown site is located directly across Maryland Street from the proposed SFERP site. Both the SFERP site and laydown area were likely part of the former railroad switchyard and are currently vacant at this time, except for some temporary storage of shipping containers on the laydown area property. Both properties are nearly level and are unpaved and/or partially covered with gravel. Surrounding and nearby properties have been (or are currently) used for barrel manufacture, fuel storage tank facilities, steel and iron fabrication, manufactured gas plant facilities, railroad facilities, and a sugar refinery (Geomatrix Consultants, Inc., 2000).

There are no agricultural land uses within the proposed SFERP site or vicinity. The gas, water supply, and electrical connections will be made to existing facilities nearest to the SFERP site and all underground trenches will be completed within existing roadways and rights-of-way.

Soil survey mapping units characterizing the types and distribution of soils within the project area, as shown on Figure 8.9-1, are taken from *Soil Survey of San Mateo County, Eastern Part, and San Francisco County, California* (NRCS, 1991). The electronic shape files for these mapping units were downloaded from the NRCS website. Detailed soil descriptions were developed from the soil survey publication (NRCS, 1991).

Data for the affected environment are summarized and presented in the following paragraphs.

Soil types for the project site and along the project water supply pipeline are identified in Figure 8.9-1. Table 8.9-2 summarizes the characteristics of each of the individual soil mapping units identified on Figure 8.9-1 in the areas that will be potentially affected by project construction, including the site boundaries and the project's linear facilities. The table summarizes depth, texture, drainage, permeability, erosion hazard rating, land capability classification, and fertility as an indicator of its revegetation potential.

There are no soil series designated as "Prime Farmland" (or Farmland of Statewide Importance) among the soils listed in Table 8.9-2.

TABLE 8.9-2
Soil Mapping Unit Descriptions and Characteristics

Map Unit	Description
134	Urban Land—Orthents, Reclaimed Complex—Slope Class (0 to 2 percent) This map unit includes areas that were once part of San Francisco Bay and adjacent tidal flats. It is about 65 percent urban land and 30 percent Orthents, reclaimed. Orthents consist of soils that have been filled and vary greatly in texture, including soil, gravel, concrete and asphalt rubble, solid wastes, and Bay Mud. They are very deep and can be poorly to somewhat poorly drained. The highly variable soil characteristics are related to the differences and amount of fill material used. Some areas have a permanent high water table at a depth of 30 to 60 inches because of fluctuating tides. Runoff is slow and the hazard of water erosion is low. The map unit is in capability class VIII and, as mentioned above, this soil capability class has limitations that essentially preclude its use for commercial crop production. The main limitations of these soils are a high water table, potential for subsidence and low fertility. These soil mapping units have highly variable soil properties related to the type and quality of fill used.

TABLE 8.9-2
Soil Mapping Unit Descriptions and Characteristics

Map Unit	Description
131	Urban Land—Slope Class (0 to 5 percent typical, but may range from 0 to 30 percent) This map unit features areas where more than 85 percent of the surface is covered by paving, buildings, and other structures, typically at slopes of 0 to 5 percent. This map unit is classified as soil capability class VIII. This soil capability class corresponds to the lowest ranking suitability for field crops because soil limitations essentially preclude its use for commercial crop production. The soils at the SFERP and surrounding areas are not used for crop production. Urban soils are typically regraded, native soils with some amounts of fill. Given that the native soils likely derived from the underlying surficial geologic formations, which are mapped as serpentinized, ultramafic rock (Wagner et al., 1991), there is a potential for some of these soils to contain natural forms of asbestos.
132	Urban Land—Orthents, Cut and Fill Complex—Slope Class (0 to 5 percent)*
133	Urban Land—Orthents, Cut and Fill Complex—Slope Class (5 to 75 percent)*

Notes:

Soil characteristics are based on soil mapping provided in the published soil survey (NRCS, 1991) and are limited to those mapped in the vicinity of the SFERP project.

* These soil units comprise the majority of the area moving westward (inland) from the SFERP area and consist primarily of urban land and Orthents (i.e., young soils) complexes, as listed below. The soils are similar to the soil mapping unit 131 in that regraded soils often derive from the in-place, native soils, which are not mapped. Because these soils are outside of the proposed SFERP area and not associated with important farmlands or wetland areas, they are not described in detail.

8.9.3.1 Agricultural Use on and around the Proposed SFERP Site

The types of land use surrounding the proposed SFERP site are presented and discussed in Subsection 8.4, Land Use. A review of the aerial photograph base map, provided in the soil survey (NRCS, 1991), confirmed that the site and surrounding areas are not used to support livestock or agricultural production. The soils mapped at the SFERP and surrounding areas are indicated to be of the soil capability subclass VIII, essentially unsuitable to commercial crop production. None of the mapped soil units in the project area are associated with prime agricultural land and agricultural activities were not observed during field visits to the site and surrounding area.

The Farmland Mapping and Monitoring Program (FMMP) of the California Department of Conservation (CDC) does not provide any statistics on conversion of farmland to non-agricultural uses for San Francisco County where the SFERP site is located (CDC, 2003). A review of the "Important Farmlands" mapping by the FMMP shows the project site and surrounding areas to be designated as "Urban and Built-Up Land."

8.9.3.2 Agricultural Use along the SFERP Linear Features

The proposed SFERP project will have underground utility connections for supplying natural gas, potable water, and process (recycled) water to the SFERP site. Similarly, the electric transmission line will be connected through an underground conveyance. The natural gas supply pipeline will extend from the northwest corner of the SFERP site approximately 900 feet to the west along 25th Street. The potable water line will extend southward approximately 300 feet from the southeast corner of the SFERP site to an existing line within Cesar Chavez Street. The process water supply for the SFERP project will be

pumped from an existing water pumping station (see Figure 8.9-1) through a conveyance pipeline approximately 0.76 mile long that will bring the wastewater to the SFERP site where it will be treated for use in an onsite treatment plant. The process water pipeline will be constructed from near the southeast corner of the SFERP site and will follow Cesar Chavez Street westward to a point where it joins into an existing collection box that will carry the process water pipeline under Highway 280 and south to within 101 feet of the pumping station. No soil trenching will be required along the existing collection box segment that is approximately 1,335 feet in length.

The underground electric transmission line will run from the northwest corner of the SFERP site west along 25th Street, then north along Michigan Street to 24th Street where it turns west to Illinois Street. The line then runs north along Illinois Street. The line will enter the Potrero switchyard either from Illinois Street or from 22nd street. Given the location of the proposed trenching areas described above, the SFERP linear features will have no impact on agricultural land uses.

8.9.3.3 Soil Types within the Study Area and Prime Farmlands

Table 8.9-2 provides a description of the properties of the soil mapping units that are found in the vicinity of the proposed SFERP site and along the proposed linear facility routes. As indicated, the soil mapping units in the project area are associated with urban land and Orthents (i.e., young soils) with wide-ranging slope classes and low capability to support commercial crop production (soil capability class VIII).

In Figure 8.9-1, the entire project site and laydown area, as well as the majority of the linear features, lie within soil mapping unit [134] Urban land – Orthents. A relatively small portion of the process water line and the electric transmission line may occur within soil mapping unit [131] (Urban land) at their most distant ends. The available information in the soil survey, specific to erosional properties of the soil mapping units that could be potentially affected, was included in Table 8.9-2. For soil mapping unit [134], the survey provided information on depth, drainage, and erosion hazard as provided in the table. However, this same information was not provided for soil mapping unit [131].

The proposed SFERP project will not affect any Prime Farmlands or other important farmlands. In fact, the project will not affect any lands used for agricultural production.

8.9.3.4 Soil Loss and Erosion

The factors that have the largest effect on soil loss include steep slopes, lack of vegetation, and erodible soils composed of large proportions of fine sands. The Soil Survey of San Mateo County, Eastern Part, and San Francisco County indicates that soils in the SFERP area have a low water erosion potential. Other indications that the water and wind erosion potential in this area is low include:

- There are nearly level conditions at the site, laydown area, and along the linears.
- The majority of soil is likely comprised of heterogeneous native and non-native fill.
- The site is surrounded by other developed properties and buildings that will limit locally significant ground-level winds that could lead to excessive wind erosion.

- The water table is close to the surface resulting in moist soils which will help minimize wind erosion.

Best management practices will be used to minimize erosion at the site during construction. These measures typically include mulching, physical stabilization, dust suppression, berms, ditches, and sediment barriers. Water erosion will be mitigated through the use of sediment barriers and wind erosion potential will be reduced significantly by keeping soil moist or by covering soil piles with mulch or other wind protection barriers. These temporary measures would be removed from the site after the completion of construction and the site will paved or completely covered. The final state of the site during operations will be completely paved or otherwise covered so soil erosion loss at that point would be negligible.

8.9.3.4.1 Water Erosion. Despite the low potential for soil erosion in the SFERP project area, an estimate of erosion by water and wind is provided below. For the purpose of estimating accelerated soil due to water erosion during construction, the following assumptions were made:

- Estimates of soil loss (in tons) were made for sand and loamy sand only because these are potentially the most erosive soils that could be present at the site and because other site-specific soil information was lacking.
- No contouring or other surface management.
- Rainfall erosivity used was for San Francisco profile.
- Assumes 100-foot slope length with 2 percent average slope.
- Soil loss estimates, as seen in Table 8.9-3, are provided for conditions during construction (estimated in model as 'bare ground, smooth surface'); for conditions during grading (estimated in model as 'bare ground, rough surface'); and for conditions in undisturbed state or with implementation of construction best management practices [BMPs] (estimated in model as 'tall fescue, not harvested').

Soil loss calculations assumed the following parameters:

- Site is 4.0 acres and laydown area is 8.5 acres (estimated from GIS). Active soil grading would occur over a 2-month period at the project site and a 1-month period at the laydown area, and soil would be exposed on both sites for the entire 10-month construction period.
- The total area for 5-ft. wide linear trenches is 0.778 acres within existing roadways. This total area was divided into five equal segments that would be worked at any one time (or 0.156 acre). Active grading or exposed soils was estimated for these segments for a 1 month period before they would be re-paved.

TABLE 8.9-3
Estimated Soil Loss by Water Erosion Using RUSLE2 Model for the Project Construction Phase

Soil Loss Conditions	Soil Loss (tons/acre/year)	Months	Estimated Soil Loss (tons)			
			Site (4.0 ac)	Laydown (8.5 ac)	Linears (0.156 ac)	Total
During Construction	1.2 to 1.3	10	4.00 to 4.34	8.54 to 9.25	0.16 to 0.17	12.56 to 13.61
During Active Grading	2.9 to 3.3	2	1.93 to 2.20	2.06 to 2.35	0.038 to 0.043	4.04 to 4.59
Undisturbed State or with Implementation of Construction BMPs	0.0037 to 0.0043	Not applicable	0.015 to 0.017 tons/yr	0.032 to 0.037 tons/yr	0.0006 to 0.0007 tons/yr	0.047 to 0.055 tons/yr

RUSLE2 Model Assumptions:

The range in soil loss is due to range in soil conditions. The lower number is for sand and the higher number is for loamy sand, two soil types that are considered to be the most potentially erosive and could be present at the site based on a subsurface geotechnical assessment made on a nearby property. It is presumed that more fine-grained soils would be less erosive and that these estimates present a worse-case scenario.

The final state of the site during operations will be completely paved or otherwise covered so soil erosion loss at that point would be negligible.

Soil losses during construction are approximated by 'bare ground, smooth surface'; during grading by 'bare-ground, rough surface'; and in undisturbed state or with full BMPs by 'tall fescue, not harvested'.

It should be recognized that the estimate of accelerated soil loss by water is very conservative because of the 'worst-case' assumptions noted above. Furthermore, the full implementation of construction BMPs to reduce soil erosion will likely reduce soil losses to near negligible levels. This is especially important in light of the potential to encounter unknown subsurface contaminants in previous developed industrial areas during excavation.

In some cases, construction activities may actually accelerate degradation of some of the organic chemicals. Many hydrocarbons and PAHs that are likely present at the site, degrade more rapidly under aerobic (presence of oxygen) conditions. Construction activities will mix air (oxygen) into the surface soils which can be used by indigenous microorganisms to degrade the organic contaminants. Furthermore, plans to pave most of the site will stabilize these soils in place, thereby protecting these soils from wind and water erosion.

8.9.3.4.2 Wind Erosion. The potential for wind erosion of surface material at the SFERP was estimated by calculating the total suspended particulates that could be emitted from active grading activities and the wind erosion of exposed soil. The total site area and grading duration were multiplied by emission factors to estimate the total suspended particulate matter (TSP) emitted from the site. Fugitive dust from site grading was calculated using the default particulate matter less than 10 microns in equivalent diameter (PM_{10}) emission factor used in URBEMIS2002 and the ratio of fugitive TSP to PM_{10} published by the Bay Area Air Quality Management District (BAAQMD, 2005). Fugitive dust resulting from the wind erosion of exposed soil was calculated using the emission factor in AP-42 (Table 11.9-4 in BAAQMD, 2005).

Mitigation measures, such as watering exposed surfaces, are used to reduce PM_{10} emissions during construction activities. The BAAQMD has not published PM_{10} emission reduction

TABLE 8.9-4
Mitigation Measures for Fugitive Dust Emissions

Mitigation Measure	PM_{10} Emission Reduction Efficiency	Efficiency Applied
Water active sites at least twice daily	34-68%	50%
Enclose, cover, water twice daily, or apply non-toxic soil binders, according to manufacturer's specifications, to exposed piles (i.e., gravel, sand, dirt) with 5 percent or greater silt content	30-74%	50%

Source: SCAQMD CEQA Handbook, Table 11-4. (1993)

efficiencies for mitigation measures. Therefore, PM_{10} reduction efficiencies from the South Coast Air Quality Management District (SCAQMD) CEQA Handbook (1993) were used to estimate the effectiveness of the mitigation measures. Table 8.9-4 summarizes the mitigation measures and PM_{10} efficiencies applied to the emission calculations.

Table 8.9-5 summarizes the mitigated TSP predicted to be emitted from the site from grading and the wind erosion of exposed soil. Without mitigation, the maximum predicted erosion of material from the site with implementation of mitigation measures is estimated at 6.7 tons over the course of the plant and linear construction cycle. This estimate is reduced to around 2.6 tons by implementing basic mitigation measures.

TABLE 8.9-5
Total Suspended Particulate Emitted from Grading and Wind Erosion with and without Mitigation

Emission Source	Duration (months)	Unmitigated TSP (tons)	Mitigated TSP (tons)
Grading Dust:			
Site Area (4.0 acres)	2	1.47	0.73
Laydown Area (8.5 acres)	1	1.57	0.78
Linear Trench Areas (0.156 acre for 1/5th segments)	1	0.03	0.014
Wind-Blown Dust:			
Site Area (4.0 acres)	9	1.14	0.34
Laydown Area (8.5 acres)	9	2.43	0.73
Linear Trench Areas (0.156 acre for 1/5th segments)	1	0.049	0.0015
Total		**6.69**	**2.60**

Notes:

Assumptions for grading are that duration will be 2 months for the project site and 1 month for the laydown area. All linears will be trenched so grading for these features was estimated by dividing linear length into 5 segments of equal length and assume grading duration of one month for each segment. Given that linears will occur along existing paved roadways, it is assumed the trench width will be 5 ft. and that completed segments will be paved after the 1 month period.

The assumptions for wind erosion on bare soil surfaces are that erosion would occur on half of the project site and laydown area for the duration of plant construction (estimated at 18 months). It was further assumed that exposed soil conditions for each of the 5 equal linear segments would last for 1 month duration.

8.9.3.5 Other Significant Soil Characteristics

A significant soil characteristic concerning the proposed project is the potential for shallow groundwater that could affect excavations, especially in the reclaimed soil areas that comprise the SFERP site and surrounding areas. These filled areas, constructed over the former Bay, may also have subsidence issues for construction.

The underlying surficial geologic formation is mapped as a serpentinized, ultramafic rock (Wagner et al., 1991), so any native soils could have some naturally occurring asbestos materials, and would require dust control and possibly require personal protective equipment during drilling or certain earth moving construction activities. Given the industrial history of the site and surrounding properties, there is a significant possibility of encountering contaminated soil materials during drilling and excavation (see Subsection 8.13, Waste Management, for a detailed discussion).

8.9.4 Potential Environmental Consequences

The following subsections describe the potential environmental effects on agricultural production and soils during the construction and operation phases of the project.

The potential for impacts to agricultural and soils resources were evaluated with respect to the criteria described in the Appendix G checklist of CEQA. An impact is considered potentially significant if it would:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps for the Farmland Mapping and Monitoring Program by the California Resources Agency, to non-agricultural use
- Conflict with existing zoning for agricultural use or a Williamson Act contract
- Involve other changes in the existing environment which, because of their location or nature, could result in conversion of Farmland to non-agricultural use
- Impact jurisdictional wetlands
- Result in substantial soil erosion

The following subsections describe the anticipated environmental impacts on agricultural production and soils during plant construction and operation.

8.9.4.1 Impacts on Agricultural Soils or Wetland Soils

As previously indicated, the SFERP site and associated linears are located within an urban portion in the Potrero District of southeastern San Francisco. There are no current agricultural uses of the lands at the SFERP site or in the surrounding areas. The mapped soils in these areas are considered essentially unsuitable for commercial crop production. As such, the proposed SFERP will not have any impact on agricultural soils or important farmlands. For this reason, the SFERP will not affect any properties currently under a Williamson Act contract or conflict with existing zoning for agricultural use.

Based on an assessment of the soil survey information and knowledge of the site conditions, the proposed SFERP will not affect wetland soils. The soils mapped in the SFERP area are those associated with the soil mapping unit (134 Urban Land—Orthents, Reclaimed

Complex). These soils are indicated to have the potential for somewhat poorly drained conditions (indicating potential hydric soils). Even with the potential for hydric soils to occur, the lack of wetland vegetation and hydrology in the SFERP area would mean that. there are no wetlands on the site. Soil drainage would be expected to improve moving westward (inland) along the process water pipeline linear route along Cesar Chavez Street and along the northern portion of the electric transmission line on Illinois Street.

8.9.4.2 Construction

Construction impacts on soil resources can include increased soil erosion and soil compaction. Soil erosion causes the loss of topsoil and can increase the sediment load in surface receiving waters downstream of the construction site. The magnitude, extent, and duration of construction-related impacts depend on the erodibility of the soil (discussed in Subsection 8.9.3.4), the proximity of the construction activity to receiving water, and the construction methods, duration, and season.

Since the erosion characteristics of the soil type at the site are minimal, very little soil erosion is expected during the construction period. In addition, BMPs will be implemented during construction, as described in Subsection 8.9.5 of this Supplement. At a minimum, the City requires that the project sponsor develop and implement an erosion and sediment control plan to reduce the impact of runoff from the construction site (see Subsection 8.14.3.2.4). Therefore, impacts from soil erosion are expected to be less than significant. Consequently, as described in Subsection 8.9.4.5, cumulative impacts are also expected to be negligible. Monitoring will involve inspections to ensure that the BMPs described in the erosion and sediment control plan are properly implemented and effective.

Construction of the proposed project would result in soil compaction during the construction of foundations, pump stations, pipelines, and paved roadway and parking areas. Soil compaction would also result from vehicle traffic along temporary access roads and in equipment staging (laydown) areas. Soil compaction increases soil density by reducing soil pore space. This, in turn, reduces the ability of the soil to absorb precipitation and transmit gases for respiration of soil microfauna. Soil compaction can result in increased runoff, erosion, and sedimentation. The incorporation of BMPs during project construction will result in less-than-significant impacts from soil compaction during construction.

Since the site and project linears will be constructed in previously filled and developed areas that will be repaved or otherwise protected after construction, the overall anticipated effects of construction are considered to be less than significant.

8.9.4.2.1 Contaminated Soil. As described in Subsection 8.13.3, the SFERP facility will be constructed within an area which has the potential to contain contaminated soil. Because the project, including the SFERP location and portions of the wastewater line, is located bayward of the historic high tide line and would involve the excavation of greater than 50 cubic yards of soil, Article 22A of the San Francisco Health Code would apply. The requirements would be triggered by the building permit application or equivalent process (the City and County of San Francisco is not subject to the Building Code requirements for building permits). Major requirements many of which may already have been fulfilled by previous investigations and documents, include:

- Preparation of a site history report to describe past site uses and identify whether the site is listed as a hazardous waste site pursuant to state or federal regulations.
- Implementation of a soil investigation to evaluate the potential presence of hazardous wastes in the soil.
- Preparation of a soil analysis report that evaluates the results of chemical analysis of the soil samples.
- Preparation of a site mitigation report, if contamination is identified, assessing potential environmental and health and safety risks, recommending measures to mitigate the risks, identifying appropriate waste disposal and handling requirements, and presenting criteria for on-site reuse of soil.
- Preparation of a certification report stating that either (1) no hazardous wastes present in the soil present an unacceptable risk and that no mitigation measures are required; or (2) all mitigation measures recommended in the site mitigation report have been completed and that completion of the mitigation measures has been verified through follow-up soil sampling and analysis, if required.

A site history report will be prepared for both the project site, and for those portions of the wastewater line located bayward of the historic high tide line. A project-specific soil analysis report(s) will be required to identify the concentration of chemicals present in the soil at the SFERP location and along the wastewater pipeline alignment that would be excavated for construction. Any additional report(s) will be prepared by knowledgeable, certified professionals and will be submitted to the SFDPH and the SFBRWQCB per the RMP/SMP.

A deed restriction is currently in place for the MUNI property. This deed restriction requires that owners or lessee's of the property to comply with a site-specific RMP/SMP. Under the RMP/SMP (that is administered by the San Francisco Bay RWQCB), the following general risk management practices must be taken before, during, and after development of the MUNI subsite:

- Provide site security.
- Develop and implement a site-specific health and safety plan prior to any development activities at the site.
- Provide adequate dust control measures during construction.
- Minimize groundwater contact by construction workers.
- After site development, maintain covering on the site (asphalt or two feet of clean fill), implement management protocols for future subsurface development, maintain groundwater use restrictions, and agency notification in the event of a change in property use.

Assuming that the City and the SFBRWQCB agree on extending the MUNI RMP/SMP to the SFERP site, the RMP/SMP will be used during construction and future maintenance of the SFERP. The RMP/SMP (1) assesses potential environmental and health and safety risks; (2) recommends mitigation measures, if any are necessary, that would be protective of workers and visitors to the SFERP facility; (3) recommends measures to mitigate the risks

identified; (4) identifies appropriate waste disposal and handling requirements; and (5) presents criteria for onsite reuse of soil. If required, the recommended measures will be completed during construction and upon completion, the City will prepare a certification report stating that all mitigation measures recommended in the site mitigation report have been completed and that completion of the mitigation measures has been verified.

The construction contract for the project will also include a provision that if previously unidentified areas of contamination are identified during construction, as indicated by discolored soil, odor, or some other condition, the contractor shall have a soil sample taken and submitted for laboratory analysis and stop work in that particular area until the results of the soil sample are known and proper material handling instructions can be determined.

The City will also comply with the onside deed restriction and site-specific Final Risk Management Plan and Site Management Plan as described in Subsection 8.13, Waste Management.

8.9.4.2.2 Laydown Area. The approximately 8.5-acre construction laydown area is located directly east across Maryland Street about 200 feet north of Cesar Chavez Street (see Figure 8.9-1). The site, under the control of the Port Authority, is a previously disturbed, relatively flat, vacant parcel of land. The site has been used in the past for storage of construction material and now is being used temporary storage of shipping containers. According to Figure 8.9-1, the laydown area soil type is 134—Urban Land-Orthents, reclaimed complex with 0 to 2 percent slopes. As described below, this soil has low erosion potential. Since the erosion characteristics of the soil type at the laydown area are minimal, very little soil erosion is expected during the construction period. In addition, BMPs will be implemented during construction, as described in Subsection 8.9.5 of this Supplement and a soil and erosion plan will be prepared to ensure soil loss is minimized. Consequently, as described in this subsection, cumulative impacts are also expected to be negligible. Monitoring will involve inspections to ensure that the BMPs described in the erosion and sediment control plan are properly implemented and effective.

Prior to use as the construction laydown area, minimal grading is expected since the site is flat. Currently, runoff from the laydown area either drains directly to the Bay via overland flow or through existing stormwater drains or percolates into the ground. However, the site will be graveled to provide all weather use and further minimize soil erosion potential. Heavy equipment stored onsite will be placed on dunnage to protect it from ground moisture. Once construction is completed, the gravel will either be removed from the site or left in place at the discretion of the Port Authority.

In addition to the gravel surface, other erosion control practices, if necessary, will be included in the Erosion and Sediment Control Plan to be prepared for the entirety of SFERP construction (see Subsection 8.14.6.1). Because the laydown area drains to the Bay, the stormwater runoff will be regulated under an existing NPDES permit held by the Port of San Francisco and its Stormwater Management Plan. These require preparation of a Stormwater Pollution Prevention Plan by the project.

8.9.4.3 Operation

Operation of the SFERP plant would not result in impacts to the soil from erosion or compaction. Routine vehicle traffic during plant operation will be limited to existing roads,

all of which are paved, and standard operational activities should not involve the disruption of soil. Therefore, impacts to soil from project operations would be less than significant.

8.9.4.4 Effects of Generating Facility Emissions on Soil-Vegetation Systems

There is a concern in some areas that emissions from a generating facility, principally nitrogen (NO_x) from the combustors or drift from the cooling towers, would have an adverse effect on soil-vegetation systems in the project vicinity. This is principally a concern where environments that are highly sensitive to nutrients or salts, such as serpentine habitats, are downwind of the project.

In this case, the dominant land use around the project is urban and the serpentine habitats in the project area are all developed for industrial, commercial, or residential uses. The addition of small amounts of nitrogen to the industrial and commercial areas would be insignificant because of the paucity of vegetation in these areas. Within the more vegetated residential areas, the addition of small amounts of nitrogen would be insignificant within the context of fertilizers, herbicides, and pesticides typically used by homeowners.

8.9.4.5 Cumulative Effects

As previously described, the effects on soil erosion, sedimentation, and compaction associated with the construction and operation of the SFERP are not considered to be significant. Therefore, the cumulative impacts of the proposed SFERP would be negligible. Impacts related to the excavation of contaminated soils would not be significant because all excavated materials will be handled in accordance with the SMIP, as discussed in Subsection 8.9.4.2.

8.9.5 Mitigation Measures

Erosion control measures would be required during construction to help maintain water quality, protect property from erosion damage, and prevent accelerated soil erosion or dust generation that destroys soil productivity and soil capacity.

8.9.5.1 Temporary Erosion Control Measures

Temporary erosion control measures would be implemented before construction begins, and would be evaluated and maintained during construction. These measures typically include revegetation, mulching, physical stabilization, dust suppression, berms, ditches, and sediment barriers. These measures would be removed from the site after the completion of construction.

The project linear features will be constructed within the rights-of-way associated with the following paved streets: 25th Street, Michigan Street, 24th Street, Illinois Street, and Cesar Chavez Street and possibly 22nd Street. Temporary erosion control might include asphalt patching until permanent paving can be completed. If required on non-paved areas disturbed by the pipeline construction, revegetation would be accomplished using locally prevalent, fast-growing plant species compatible with adjacent existing plant species.

During construction of the project and the related linear facilities, dust erosion control measures would be implemented to minimize the wind-blown erosion of soil from the site.

Water of a quality equal to, or better than, either existing surface runoff or irrigation water would be sprayed on the soil in construction areas to control dust during revegetation.

Sediment barriers slow runoff and trap sediment. Sediment barriers include straw bales, sand bags, straw wattles, and silt levees. They are generally placed below disturbed areas, at the base of exposed slopes, and along streets and property lines below the disturbed area. Sediment barriers are often placed around sensitive areas; such as wetlands, creeks, or storm drains; to prevent contamination by sediment-laden water.

The site will be constructed on relatively level ground; therefore, it is not considered necessary to place barriers around the property boundary. However, some barriers would be placed in locations where offsite drainage could occur to prevent sediment from leaving the site. If used, sediment barriers would be properly installed (staked and keyed), then removed or used as mulch after construction. Runoff detention basins, drainage diversions, and other large-scale sediment traps are not considered necessary due to the level topography and surrounding paved areas. Any soil stockpiles, including sediment barriers around the base of the stockpiles, would be stabilized and covered. These methods can also be employed during trenching operations for the recycled water supply line.

8.9.5.2 Permanent Erosion Control Measures

Permanent erosion control measures on the site will include graveling, paving, and drainage systems.

8.9.6 Permits and Agency Contacts

Permits required for the project, the responsible agencies, and proposed schedule are shown in Table 8.9-6. A construction permit, including a grading permit, will be obtained from the City before construction begins. Other required permits include an Industrial Wastewater Discharge Permit, as discussed in Subsection 8.14, Water Resources.

TABLE 8.9-6
Permits and Agency Contacts for SFERP Soils

Permit or Approval	Schedule	Agency Contact	Applicability
Approval of grading plan; issuance of construction and grading permits	Prior to construction	None identified CCSF Department of Public Works, Bureau of Building Inspection 1660 Mission Street, 6th floor San Francisco, CA 94103-2414 (415) 558-6087	Grading, excavation, and erosion control plan for site
Hazardous waste	Prior to construction	Mardeeta Jones CCSF Department of Public Health 101 Grove Street San Francisco, CA 94102 (415) 252-3938	Approval of Site Mitigation and Implementation Plan
Erosion and Sediment Control Plan	Prior to construction	John Mundy Port of San Francisco, Pier 1 San Francisco, CA 94111	Regulation of stormwater discharge from site and linear facilities during construction

8.9.7 References

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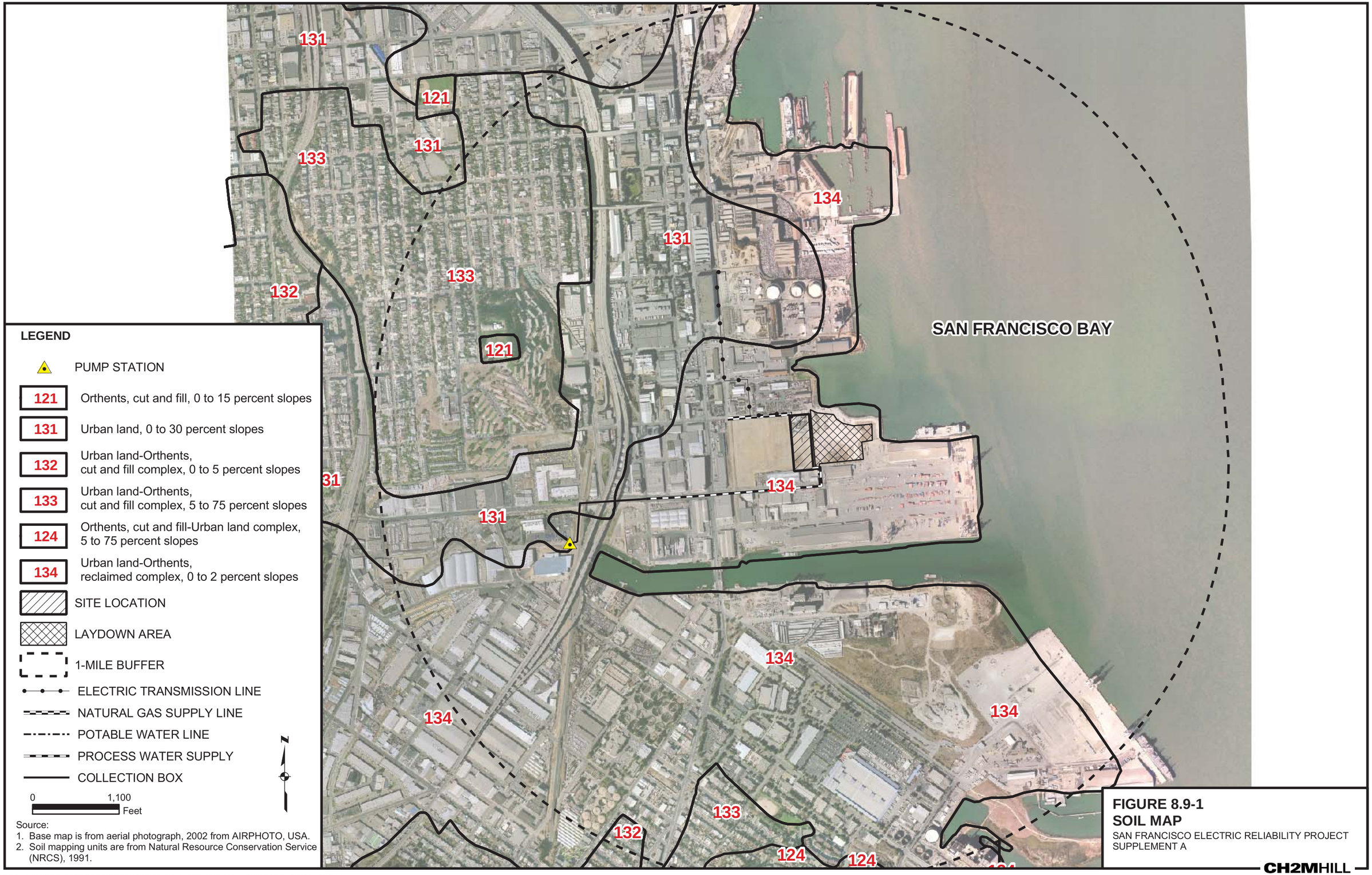

LEGEND

- PUMP STATION
- 121 Orthents, cut and fill, 0 to 15 percent slopes
- 131 Urban land, 0 to 30 percent slopes
- 132 Urban land-Orthents, cut and fill complex, 0 to 5 percent slopes
- 133 Urban land-Orthents, cut and fill complex, 5 to 75 percent slopes
- 124 Orthents, cut and fill-Urban land complex, 5 to 75 percent slopes
- 134 Urban land-Orthents, reclaimed complex, 0 to 2 percent slopes
- SITE LOCATION
- LAYDOWN AREA
- 1-MILE BUFFER
- ELECTRIC TRANSMISSION LINE
- NATURAL GAS SUPPLY LINE
- POTABLE WATER LINE
- PROCESS WATER SUPPLY
- COLLECTION BOX

N

0 1,100 Feet

Source:
1. Base map is from aerial photograph, 2002 from AIRPHOTO, USA.
2. Soil mapping units are from Natural Resource Conservation Service (NRCS), 1991.

FIGURE 8.9-1
SOIL MAP
SAN FRANCISCO ELECTRIC RELIABILITY PROJECT
SUPPLEMENT A

CH2MHILL

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